



**Michigan Department of Consumer & Industry Services
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Requirements for Fixtures Connecting at the Base of Vertical Piping Less than a Story in Height

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Technical bulletins are issued to provide clarification on issues which arise regarding code administration and enforcement. The information provided in the bulletin is developed to promote uniform interpretation and enforcement of the state codes by the Bureau of Construction Codes.

Requirements for Fixtures Connecting at the Base of Vertical Piping Less Than a Story in Height

Issue

The State Plumbing Code is not clear on the provisions for making fixture connections to vertical piping less than a story in height.

Discussion

When drainage piping has a vertical fall of 3 feet or more, the transition of flow from vertical to horizontal creates a phenomenon called a “hydraulic jump”. This phenomenon occurs at the base of all vertical soil and waste piping which receive the discharge of more than 3 drainage fixture units.

Most horizontal drainage piping is designed and sloped to flow half full in order to keep air circulating within the system. A “hydraulic jump” occurs when vertical drainage piping is connected to horizontal drainage piping. The discharge flow at the point of transition creates a turbulence which causes the horizontal piping to become completely filled, which causes a “hydraulic jump”. Fixture trap seals would siphon due to insufficient air circulation if allowed to be installed in this transition area.

It has been determined that the “hydraulic jump” phenomenon occurs when fixtures discharge into vertical piping which rise 3 feet or more in height. Restricting the placement of fixtures in the transition area is very critical in order to protect the health and safety of the occupants within the structure.

Conclusion

Section 102.9 requirements not covered by code, states: “Any requirements necessary for the strength, stability or proper operation of an existing or proposed plumbing system, or for the public safety, health and general welfare, not specifically covered by this code shall be determined by the code official.”

Therefore, fixtures must be installed a minimum of 10 pipe diameters downstream from the base of vertical piping which receives the discharge of more than 3 drainage fixture units, and exceeds a distance of 36 inches in height.

Questions regarding this technical bulletin may be directed to the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes, Plumbing Division, P.O. Box 30254, Lansing, MI 48909 or by calling (517) 241-9330.